Implementation of Diabetic Foot Care Education Improvement Project

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Background

- Diabetes mellitus affects 171 million persons globally and this number is projected to double by 2030 (Mendes & Neves, 2012).
- Up to 25% of diabetic patients are at risk of developing diabetic foot ulcers (DFUs) (Hurlow et al., 2018).
- The annual-population based incidence of DFU is 1 to 4%, with a prevalence of 4 to 10% (Mendes & Neves, 2012).
- The mortality rate in DFU population is 99.9 per 1000 person-years compared to 41.6 in diabetes only population (Hurlow et al., 2018).
- DFU leads to infections, amputations, and death (Del Core et al., 2018).
- The project setting treats 3-4 diabetic patients daily.
- In 2019, the clinic treated 288 patients with diabetic-related complications.
- Foot care education can improve foot care behaviors; thereby, preventing DFU complications (Sulistyo et al., 2018).
- Primary care providers in the clinic yet to adopt foot care education.

Objectives

- Improve diabetic patients' knowledge of foot care by 10% as measured by Knowledge of Foot Care Questionnaire by the end of the project implementation.
- Train providers on the best ways of providing diabetic foot care education.
- Increase the rate of documentation of diabetic foot care education in Electronic Health Records by 5% by the end of 2020.
- Improve foot care practices among diabetic patients by 5% by the end of 2020.
- Reduce the number of foot complications among the patients by 5% by the end of 2020.

Methods

Project Design: The quality improvement project adopted a quantitative methodology with a quasi-experimental, pretest and posttest design.

Setting: Outpatient clinic located in Coos Bay, Oregon.

Participants & Sample size: Diabetic patients. A sample of 31 diabetic patients used in the project.

Intervention: Diabetic foot care education based on guidelines by American Diabetic Association and National Diabetes Education Program.

Outcomes: Diabetic foot care knowledge, diabetic foot care practices and diabetic foot care complications.

Data collection: The Knowledge of Foot Care Questionnaire (Hasnain & Sheikh, 2009), Nottingham Assessment of Functional Foot Care, Patient records.

Data analysis: Paired *t*-test to compare pretest and posttest results.

Results

Sample demographic characteristics

Variable	Category	N	%
Gender	Female	17	54.8
	Male	14	45.2
Education	Secondary	5	16.1
	Diploma	18	58.1
	Undergraduate	8	25.8
Marital Status	Single	3	9.7
	Married	19	61.3
	Separated	1	3.2
	Divorced	3	9.7
	Widowed	5	16.1
How long have you been diagnosed with Diabetes	Less than a year	2	6.7
	1-5 years	12	40.0
	6-10 years	10	33.3
	more than 10 years	6	20.0
How is your Diabetes controlled	Insulin and oral medication	4	13.3
	Diet control	4	13.3
	Diet control and exercises	7	23.3
	Insulin	1	3.3
	Insulin and oral medication	1	3.3
	Oral, diet, and exercise	1	3.3
	Oral medication	11	36.7
	Oral medication and diet control	1	3.3

Results

Participant demographics: Females=54.8%, Males= 45.2%.
Mean age= 61.81.
Diploma= 58.1%
Married=61.3%.
Sixty percent (60%) diagnosed with diabetes 1-5 years ago.
On oral medications=36.7%.

Foot care knowledge: A significant difference in pretest and posttest ($t(28) = -2.987$, $p = 0.006$). Diabetic patient foot care knowledge significantly improved from pre-intervention (M = 12.69, SD = 3.118) to post-intervention (M = 14.69, SD = 1.365).

Foot care practices: A significant mean difference in pretest and posttest foot care skills (t (30) = -8.506, p = .000). Diabetic patient foot care skills significantly improved from pre-intervention (M = 52.13, SD = 9.142) to post-intervention (M = 64.35, SD = 6.290).

Diabetic foot complications: A significant mean difference in pretest and posttest diabetic foot complications (t(30) = 6.053, p = .000). Diabetic foot complications significantly decreased from pre-intervention (M = 1.97, SD = 1.048) to post-intervention (M = 1.06, SD = 1.063).

Table 1. *Group statistics and paired t-test for patient's foot care knowledge*

Group	N	M	SD	t	df	p-value
Pre-Intervention	29	12.69	3.118	-2.987	28	0.006
Post-Intervention	29	14.69	1.365			

Table 2. *Group statistics and paired t-test for patient's foot care skills*

Group	N	M	SD	t	df	p-value
Pre-Intervention	31	52.13	9.142	-8.506	30	0.000
Post-Intervention	31	64.35	6.290			

Table 3. *Group statistics and paired t-test for patient's foot complications*

Group	N	M	SD	t	df	p-value
Pre-Intervention	31	1.97	1.048	6.053	30	0.000
Post-Intervention	31	1.06	1.063			

Conclusions & Implications

Conclusions

- Diabetic foot care education is an effective intervention of increasing foot care knowledge among diabetic patients.
- Diabetic foot care education is effective in increasing foot care skills among diabetic patients.
- Diabetic foot care education leads to a significant decrease in diabetic foot complications among diabetic patients.

Implications

- Primary care clinics should embrace diabetic foot care education to improve patients' foot care knowledge and practices.
- Providers should be empowered with the knowledge for offering foot care education.
- The clinics should develop and adopt policies and guidelines requiring providers to routinely educate diabetic patients on proper foot care practices.

Sustainability

- Offer resources/guidelines on proper foot care practices for diabetic patients.
- Adopt policies requiring healthcare practitioners to provide foot care education to diabetic patients during routine follow-up appointments.

References

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